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SACEMA Research Days 2017

Dr Gavin Hitchcock - Assistant Director: Training, at SACEMA.

The annual ‘Research Days’ meeting in Stellenbosch, to which all SACEMA funded students and their supervisors are invited, took place over four days 21 - 24 August 2017, including several welcome new features: poster sessions, prizes for best presentations, student and supervisor forums, and a debate. A number of external supervisors, associates, collaborators and visitors were able to attend, and three members of SACEMA’s newly formed Scientific Advisory Committee were also present. A total of over seventy people took part.

Four training workshops were offered over the first two days to about forty students:

Speaking Confidently in Public aimed to equip students with necessary academic presentation skills. Focusing on areas of stress management, content structure, body language and physical presentation, and question and answer sessions, the heart of the workshop was the opportunity for the group to watch and critique recordings of two-minute presentations by each participant, providing each with personal feedback and advice. This was followed by a second opportunity to give a two-minute talk, attempting to implement lessons learned. The workshop was facilitated by professional media trainer **Vicky Davis**, who is an actress, TV writer, presenter and director for TV shows, and programme manager at the Cape Town Music Academy NPO.

Open Science discussed the movement calling for greater transparency in science and broader access to scientific information, including scientific articles, and the raw data and tools used in the research. The workshop introduced participants to a range of options for publishing their work in open access forums and techniques for making data and code available publicly. It provided an opportunity not only to explore the gains – facilitation of wider use, adaptation, alternative analyses, reproducibility of results, etc. – but also the potential pitfalls associated with the open science model, such as the rise of predatory journals. The workshop was facilitated by **Eduard Grebe**, a Researcher at SACEMA who works primarily on HIV incidence estimation.

Introduction to Scientific Writing Skills for Academic Articles focused on the writing skills required for producing and organising information in academic articles. Participants worked together

and discussed aspects of textual construction, including types of academic articles, internal coherence, writing abstracts, and revision in response to peer feedback. The workshop was facilitated by **Selene Delpont** of the Writing Lab, at the Language Centre of Stellenbosch University.

Introduction to Scientific Writing Skills for Theses and Dissertations focused on the writing skills required for producing and organising information in theses and dissertations. Here, too, participants interacted in discussing textual construction at both the overall structural level, and the internal coherence and cohesion level. Topics included headings, literature review, paragraphing, and argumentation. The workshop was facilitated by **Rose Richards** of the Stellenbosch University Writing Centre.

A Student Forum was convened on the first day by MSc students James Azam and Wanja Chabaari, and issues arising were shared, together with many other matters of mutual interest, at a *Supervisor Forum* on Tuesday.

At the official welcome session after tea on Tuesday afternoon, SACEMA’s Director, Prof Juliet Pulliam gave an overview of the programme and purpose of the meeting, and then the first Keynote talk was presented by **Brian Williams** on *Modelling and Analysis to Improve Public Health*. Dr Williams, a close associate of SACEMA and indeed a co-architect of its founding, is based in Geneva and continues to work on HIV and TB with UNAIDS and WHO. After giving a sketch of the history and nature of what is now called “public health”, he described the motivation for setting up SACEMA as “to find ways in which mathematicians, computer scientists, and analysts can contribute in useful and important ways to improving public health in Africa”, and he outlined the critical contribution that mathematical modelling can make in several areas. First, mathematical models provide a unifying framework in which to bring together otherwise diverse results arising in many different fields but which affect public health; secondly, mathematical models inevitably lead to consideration of the dynamics of disease transmission without which it is impossible to project the impact of different infection or disease control strategies; thirdly, disease dynamics are intrinsically non-linear, a key feature at the very heart of mathematical analysis but critically absent from much discussion of

disease control; and finally the importance of discrete and stochastic processes which are of particular importance when numbers are small and we are dealing with disease elimination. In the discussion Juliet Pulliam added another key concept, that of uncertainty, which is carefully defined in the mathematical world but widely misinterpreted by those without a solid quantitative background. These points were illustrated by work done at SACEMA and elsewhere, to inform and improve the control of infectious diseases.

Wednesday was launched with an inspirational keynote talk: *It's about the Journey, not so much the Destination*, by **Dr Nonjabulo Gule**, named as one of the Mail & Guardian Top 200 Young South Africans in 2013. Dr Gule is a Researcher and Lecturer at Stellenbosch University, currently focusing on the synthesis of functional nanomaterials for water treatment (antifouling) and synthesis of biodegradable biomaterials for applications in tissue engineering, water treatment and other industrial applications. She has collaborations in the UK, France, Swaziland, and Italy, holds a DST/ NRF research career advancement fellowship, and supervises a number of PhD and Masters students. She communicated well her passion for her work and shared both the difficulties and the rewards of her journey. One SACEMA staff member summarised her key message thus: if you are selective in your work and seek challenges that you are really excited about, then you will find the stamina to push through when things are not going as planned.

Over the two final days, talks were given by SACEMA-affiliated researchers Jacky Snoep, John Hargrove, Juliet Pulliam, Eduard Grebe, Alex Welte, Cari van Schalkwyk, and Wim Delva. In addition, a total of forty-three students gave

presentations on their work-in-progress, including SACEMA bursary holders and students working with Jacky Snoep (who holds the SACEMA-associated South African Research Chair (SARChI)). Nine students gave oral presentations, and thirty-four presented posters in two lively poster sessions kicking off with two-minute plenary poster pitches. As usual, the meeting provided an ideal opportunity for emerging researchers to receive constructive critique and to practise their presentational skills in a friendly environment. The climax of the Research Days meeting was an animated debate chaired by Martin Nieuwoudt on the currently important and contentious issue of Open Data, with protagonists **John Hargrove** and **Eduard Grebe** propounding and arguing opposite views, followed by audience input. After a final tea-break, thanks were given and prizes presented for the best talk (**James Azam**), the best poster presentation (**David Phair**), and the best poster pitch (**Floris van Zyl**). Honourable mentions for posters were: **Zinhle Mthombothi** and **Khotso Matlou**.

Throughout the four days, participants were encouraged to get to know each other in the breaks and at a series of social events: a spit-braai on Monday evening, a reception on Tuesday, and a dinner in town on Wednesday. This was, many have said, the best Research Days meeting yet. There was no flagging of enthusiasm, much vigorous scientific interaction, a high quality of presentation, and some excellent work on display.

Dr Gavin Hitchcock – Assistant Director: Training, at SACEMA. Areas of interest: history and pedagogy of mathematics, philosophy of modelling, interdisciplinary discourse.

aghitchcock@gmail.com